

& BOOKS IN ANCIENT EGYPT

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PAPER AND BOOKS IN ANCIENT EGYPT*

AN EGYPTOLOGIST SHOULD AND ALSO DOES INQUIRE if and how ancient Egypt contributed to modern civilization.¹ Nothing need be said about the recognized fact that this modern civilization is a direct outcome and heir of the civilization of the Greeks. The degree, however, of the Greek, and therefore indirectly our own indebtedness to the ancient Oriental civilizations is less clear, but that it is considerable becomes more and more apparent with the progress of the study of the ancient Middle East.

As far as Egypt is concerned, the Greeks frankly and readily, almost too readily, confessed their debt to the civilization of the Nile valley, even in respects in which such an obligation is not apparent to us and where, consequently, we are not prepared to accept it without question. Often, in fact, after a vain search for definite proofs, we can only hope that the proud Greeks knew what they were talking about.

There is, however, one Egyptian invention which the Greeks took over very early, but of which, although they never denied their indebtedness, they hardly ever realized the full bearing on the development of their thought and spiritual life. This Egyptian invention was paper, not our linen-paper which came from China *via* Baghdad in the eighth century of our era, but the Egyptian papyrus.² This and the production of books made thereof were taken over by the Greeks probably in the sixth century B.C.; after that date Greek literature was transmitted and preserved on papyrus until the latter was superseded by parchment, a process which seems to have started in the second century after Christ.³ Besides being responsible for the transmission and preservation of Greek thought when once written down, the use of papyrus also en-

* It was not originally my intention to publish this inaugural lecture. When it was delivered, much material and many details had had to be excluded owing to the restricted time available for the lecture and I therefore decided to expand it into a book. Since, however, I do not know when or if ever I shall be able to put this project into effect, and following requests which have reached me from various quarters, I now publish it belatedly in its original form. I should like to express my gratitude to the University College authorities for kindly authorizing the publication of the lecture so long after it was delivered.

couraged the creation of new literary works, and the nature and size of papyrus books influenced the extent and form of literary compositions. It is idle to speculate what would have been the development of Greek literature, and indeed of the whole Greek civilization, if they had been dependent on some heavier, more cumbersome or more expensive writing material, such as stone and metal plates, wooden and clay tablets, or leather—the Greeks seem never to have been quite aware of the blessing of papyrus, but no one to-day will deny that without it Greek spiritual life would have been much poorer and more primitive. It is indeed very probable, though it cannot be proved, that even before the Greeks, papyrus was the chief vehicle of Hebrew literature; certainly in later times the Tora was written on papyrus and it has never lost the old roll form. The chief outlet of papyrus into the Greek world was probably the Phoenician port Gubal; the Greek form of its name, Byblos, seems to have been influenced by the Greek words βύβλος for ‘papyrus-reed’, and βίβλος or βιβλίον for ‘book’.⁴ The word *πάπυρος*, attested in Greek since Theophrastus only, is thought to be of Egyptian origin.⁵ Still in the very late Bohairic (Lower Egyptian) dialect of Coptic (Christian idiom of Egypt) **παπορο*, though not actually attested, would mean ‘that of the King’, *πορο* being here the word more familiar to us in its Biblical form as Pharaoh.⁶ ‘That of the King’ would refer to the fact that papyrus was the subject of a royal monopoly or control in Ptolemaic times. The only objection I can see to this derivation is that the similarity of the Greek and the Egyptian words is too great—much greater than is usual in such cases.

Certainly, an Egyptian etymology of the word is what we should expect, since the cradle of the papyrus was Egypt. Those who have seen modern Egypt find it difficult to believe that in antiquity large areas of the country, especially in the Delta, were occupied by swamps in which the papyrus grew and flourished. Of all this nothing is now left, the only specimen of the plant to be seen being in the Cairo Botanical Garden, and it is necessary to go as far as the Sudan and Abyssinia to find the papyrus growing wild. In the Graeco-Roman period it was introduced into Sicily, where it may still be found at and near Palermo. Some classical authors inform us that the papyrus plant occurred

elsewhere in the Middle East, in Syria and Mesopotamia for instance, but nowhere is there any allusion to such use being made of the plant there as in Egypt.

Papyrus, or speaking botanically *Cyperus papyrus* L., was called in Egyptian *twfy*; the word, still preserved in Coptic ⲭⲟⲟⲩⲓⲥ⁷ passed into Hebrew as פִּיט. It is a reed which grew in 'lakes' (*mrw*, Harris 27, 11) and 'pools' (*hnt*, Harris 37a, 1), in shallow, stagnant water. The root was completely submerged in water and mud, but several stems sprang from a single root, often reaching 3-6 metres in height and ending at the top with flowers. The plant played a considerable part in Egyptian art. In architecture, columns often represented the papyrus stem, having as their capital a papyrus flower, whilst papyrus flowers are a favourite component in Egyptian ornaments. Crowns of papyrus were used for decoration, light boats were formed by tying together the stems, and the root served as food for the poor classes of the population.

The way in which writing material was made from papyrus is described by Pliny,⁸ but his account is neither clear nor quite correct; it may, however, be supplemented by an examination of actual specimens preserved from antiquity. A painted relief in the tomb of Puyemrē at Thebes,⁹ dating from the XVIIIth Dynasty, shows a man standing in a boat, which is itself made of papyrus, plucking papyrus stems; another man in the centre of the boat ties them together into bundles. Further to the right a man carries a bundle of the stems on his back, evidently supplying another, who is sitting on a low stool busily working on the stems, and quite possibly preparing them for manufacture into paper. He is holding one end of the stem, the flower of which has been cut away, between the toes of his left foot and the other end in the fingers of his left hand, while, with his right hand, he is stripping the stem. There is no continuation to the representation in the tomb, but we know that the stem, which was triangular in section, was first stripped of its outer rind and then cut into shorter pieces of about 40 cm. in length. The inner pith was subsequently cut lengthwise into thin narrow slices. All this preparation was done while the plant was still fresh and green.


To make a sheet of papyrus these slices were placed side by side on a hard wooden plank or table with their edges slightly over-

lapping; on this first layer another was put but with the slices running at right angles to the slices of the first layer. By pressing and beating the two layers became welded together; the tissue thus made was dried under pressure; lastly the surface was polished with some rounded object, possibly of stone, until it became perfectly smooth.

The borders of the sheet were then cut in order to make them straight and to give the sheet a rectangular shape. The upper layer showed horizontal slices, or, as we call them, fibres running from left to right, while the lower side consisted of vertical fibres. If held against the light, the two layers together present a fine checkered pattern.¹⁰

On several occasions in modern times paper has been made of the papyrus plant in the way just described, first probably by Bruce in the seventeenth century.¹¹ His results were not quite satisfactory, as his paper was rather thick and heavy, turned rigid after drying and was never white. Lucas¹² was not successful when he worked in Cairo with stems sent from the Sudan which had become dry in transport. Professor Gunn,¹³ however, while living in Cairo, made good paper from papyrus plants grown in his own garden, placing linen both under and over the two layers of papyrus fibres to absorb the moisture released while beating with a mallet and afterwards pressing. Following his example Lucas too succeeded in producing similar paper.

Gunn's papyrus is now exhibited in the Cairo Museum. It is nearly white, except for numerous light brown specks, which could perhaps have been avoided by taking special precautions. Some years before Gunn and Lucas, Dr Ibscher in Berlin had also produced a satisfactory white paper¹⁴ from plants grown in the Berlin Botanical Garden. I have also seen a specimen made in Sicily from the local plant, but, if I remember rightly, this was dark yellow, very much like the papyrus which has come down to us from antiquity, and not flexible enough.

That the ancient Egyptian paper was white, or nearly so, is attested on the one hand by epithets given to it by Tibullus¹⁵ and on the other hand by the white colour of the hieroglyphic sign  in carefully executed and coloured Egyptian inscriptions. This sign represents a papyrus roll, of which we shall speak later, and when

coloured is mostly white, although sometimes bright yellow.¹⁶ The papyrus held by statues of sitting scribes or readers is also white in cases where the colour is preserved.¹⁷

To-day ancient papyrus is never white, but its colour varies from pale yellow through all shades of reddish brown down to dark blackish brown. On the whole it is true to say that unless the papyrus has lain in the ground in unfavourable conditions and has been stained by the substances contained in the soil, the earlier papyrus is brighter in colour, later papyrus, being less carefully made, is consequently browner; Byzantine and Arabic papyri are mostly quite coarse and dark. But the scale of colour suggested by Borchardt¹⁸ as an indication of the various dates of papyrus is more than doubtful.¹⁹ For instance, some of the Vth Dynasty fragments preserved at University College are buff yellow, while the majority are dark brown, although all of them belong to the same period.

Old papyri were already yellow in antiquity, as is shown by a feature to be observed in the royal tombs in the 'Valley of Kings' of Thebes. Their walls are entirely covered with religious representations and inscriptions, but while the later tombs have inscriptions in carefully sculptured and coloured hieroglyphs on a white ground, the two earliest tombs, those of Tuthmosis III and Amenophis II, show the same inscriptions written in black or red in simplified hieroglyphs and all representations in summary black lines, exactly as they used to be written and drawn in religious books. The ground too is not white, but yellow. Evidently the walls of these two tombs were or pretended to be copies of an illustrated manuscript which had become yellow with age.

According to Pliny several qualities of papyrus existed in his time, varying in size and name, but no corresponding or analogous varieties are known from the Pharaonic period. In general the later papyri are less well made than those of earlier date; they are thicker and show more clearly the texture of the papyrus, while those made before the New Kingdom often are so thin and translucent²⁰ that the fibres of one side are visible on the other, and sometimes it is difficult to detect which side has horizontal fibres and which side has vertical.

One point regarding the preparation of papyrus is still in doubt,

namely, whether the two layers of which a papyrus sheet consisted were pasted together or not. According to Schenk,²¹ of Leipzig University, who analysed samples of modern Palermo papyrus, of the medical papyrus Ebers, and of the Papyrus Harris in the British Museum, the modern papyrus contained grains of starch in its cells, evidently natural starch produced by the plant itself; from the two ancient samples, however, starch was entirely missing, perhaps because the stems had been cut before starch had accumulated in the plant, or because it had been destroyed during the manufacture of the papyrus. Instead, the fibres of the ancient papyrus were joined together by some adhesive soluble in water, probably gum Arabic or white of egg. Möller,²² too, says that a very thin solution of gum was used, but Bruce thought that the natural starch (he speaks of 'sugar or sweetness') provided the necessary adhesive and Gunn obtained a satisfactory result without adding any adhesive.²³ In view of the stiffening effect of the starch it seems *a priori* indubitable that starch would have been detrimental to the flexibility of the papyrus; I am therefore inclined to believe that no paste was used, and Bruce's and Gunn's experiments show that no addition of paste was necessary.

Though the ancient papyrus now often resembles very closely any dry leaf in respect of both colour and fragility, it could in antiquity be easily rolled and folded. It was somewhat thicker than ordinary modern writing paper 0.075 mm. thick, two specimens of New Kingdom papyri which I measured with a micrometer proved to be 0.10 and 0.15 mm. in thickness respectively.

Though the length of the papyrus stems would have permitted the manufacture of sheets of considerable size, observation shows that the size was kept within certain limits, which undoubtedly made the paper easier to handle. The maximum height, which never seems to have been exceeded, is 47 cm. This full height is, however, seldom found in manuscripts; usually it is much less, having been cut down either in the factory itself or by the scribe who was going to use it. We shall deal with this matter presently in more detail, as well as with the length of the sheet. The length of the sheet varies between 38 and 42 cm. during the Middle Kingdom, sheets longer than this being exceptional; during the New Kingdom the length varied between 16 cm. and 20 cm.

To create a larger writing surface than that provided by a single sheet, a number of sheets were pasted together and in this way the only form of book known in ancient Egypt came about, namely the papyrus roll. This pasting together was done in the factory, but sometimes a scribe wanting still more space than his roll provided, lengthened it by adding new sheets; sometimes also he made a roll out of various odd bits of paper and unused parts of other rolls.

The standard number of sheets forming a roll seems to have been twenty. In the calendar of offerings presented to the temple of Madinet Habu by Ramesses III we read that the temple received ²⁴ '5 *k'ht* of papyrus per month, making 3 rolls a year'. This shows that a roll consisted of twenty units, called *k'ht*, and it is evident that this unit can only be the sheet, of which we see rolls made. The wording of the account shows that the number twenty was quite normal. That twenty sheets was probably the size of rolls supplied from factories is supported by the fact that at a much later date, Pliny ²⁵ says that the maximum number of sheets in a roll was twenty, and twenty is again the number found in Arab times.²⁶

Borchardt ²⁷ noticed in P. Berlin 3002 (of Nakhtamūn) at a join of the sheets (over line 95) a hieratic sign for '20', and the same sign occurs again at another join (over line 348). As there are nineteen other joins between these two, and as the former of the two figures is partly covered by the overlapping next sheet, it is clear that the numbers were inserted not only before the papyrus was written, but also before it assumed its present size, and that the original smaller rolls contained only twenty sheets. The numbers were probably marked on the roll in the factory or in the shop ²⁸. Berlin med. pap. 3038 has eighteen joins. The beginning is lost, but supposing that one sheet is lost here, we obtain a normal roll of twenty sheets.²⁹

The sheets were pasted together along their height which—as we have said—was at most 47 cm.; this, consequently, was also the maximum height of the roll. Every sheet overlapped the next sheet on its left by about 1 or 2 cm. We call these places 'joins'. For pasting, common starch paste was used and was so characteristic of the roll that the Greeks called the sheet *κόλλημα*, the first one, on the extreme right of the long band so formed, *πρωτόκολ-*

λον, the last at the extreme left ἐσχατοκόλλιον, all three words coming from κολλάω 'to paste'.

In the strip all the sheets were placed so that the horizontal fibres were on one side and the vertical on the other. Only by chance scribes sometimes, while pasting together the sheets for themselves,³⁰ joined two sides with the fibres going in different directions. The join is usually rather coarse, the papyrus being rather thick at this point, but in early papyri (before the New Kingdom) they are sometimes so well made and the papyrus again so well pressed and smoothed that the joins can be discerned only with considerable difficulty.³¹

The join therefore runs at right angles to the horizontal fibres, and this side of the papyrus we call the 'recto', while the other side, with vertical fibres running parallel with the joins, is the 'verso'.³² When we are faced with a small piece of papyrus showing no join, we are unable to say with certainty what the relation of fibres and joins was, and consequently cannot determine which side was the recto and which the verso, though, if the papyrus is covered with writing, we can tell with a high degree of probability from the relation of the fibres to the lines of writing.

The natural way of keeping a long strip of papyrus was not by folding it but by rolling it—we have here a papyrus roll. Folding proved in the long run not to be satisfactory because the cells of the fibres were thereby submitted to too much pressure and displacement at the fold and the papyrus was apt to crack at that point when unfolded. Rolling on the other hand put very little strain on the cells, and even in the dry Egyptian atmosphere, papyrus preserved its original flexibility for a long time.

Papyrus was rolled with the horizontal fibres inside; the vertical fibres, that is the verso, were thus outside the roll, starting from the left hand extremity of the strip. The right hand end was therefore outermost and free in a rolled up papyrus. The strip was never rolled with the horizontal fibres outside and vertical fibres inside, for by such a procedure the vertical fibres would be compressed into a diminishing perimeter, with the result that they would come apart, while, when rolled the other way, they would be spread evenly around an increasing perimeter, and, in unrolling, would again fall into their original position.

The roll thus assumed approximately the shape of a cylinder, the length of which corresponded with the height of the papyrus strip, while its thickness was determined by the length of the strip. Papyrus being heavier than our paper, the thickness did not show a perfect circle, but was somewhat oval or elliptical.

In rolls, papyri of considerable length could easily be handled. According to Ibscher a papyrus of 6 m. in length gave when tightly rolled a cylinder 5-6 cm. thick, which could easily be spanned by the fingers of a hand, the circumference being about 16-19 cm. According to Borchardt the perimeter of the P. Berlin 3003,³³ which is 4.71 metres in length, is 16 cm.

In order to give the roll greater strength, the Romans sometimes folded the papyrus round a wooden or bone stick (*umbilicus*); nothing similar has been observed in ancient Egyptian rolls. Only in one case, in a roll containing the Calendar of Lucky and Unlucky Days acquired by the Cairo Museum in 1943, the papyrus itself was tightly folded several times at its inner (left) end so as to form a kind of stick.³⁴

When papyrus was invented is unknown. The earliest inscribed papyri known so far are fragments of books of accounts from the funerary temple of King Neferirkere of the Vth Dynasty, shared by the Museums in Cairo and Berlin and the collections of Borchardt and our own College. But the method of writing simplified forms of hieroglyphs in ink (the so-called hieratic writing) can be traced back through the IVth³⁵ and IIIrd³⁶ to the Ist Dynasty,³⁷ and it has been suggested, not without reason, that the use of ink and that of hieratic writing were closely connected with the introduction of papyrus as a writing material. The hieroglyphic sign of a roll, probably representing a papyrus roll, first occurs in the Ist Dynasty³⁸ and so does the sign of the scribe's writing instruments, the palette and the brush.³⁹ Recently a papyrus roll, unfortunately blank, was found in the tomb of Hemaka, a high official of the Ist Dynasty, at Sakkara⁴⁰ which pushes the existence of papyrus definitely back to about 3100 B.C.


Before we pass from the blank unwritten roll to the book, that is to the roll covered with writing, we must first mention the scribes' writing instruments.⁴¹ These were the ink and the brush to write with, the palette, in or on which both articles were kept, and

a small pot containing water for dissolving the ink. For writing the Egyptians used ink of two colours, black and red.⁴²

The black ink was made of carbon, probably a fine soot, like our lamp-black, scraped from cooking vessels⁴³ and mixed with a thin solution of gum.⁴⁴ Its use can first be observed on pottery jars belonging to the Predynastic period.⁴⁵ Certain parts of the text were, as we shall see later, written with red ink prepared by mixing finely ground red ochre with gum and water. Both inks, black and red, were dried and fixed in the form of small solid cakes on the scribe's palette.

The brush with which Egyptians wrote was the stem, cut to a suitable length, of a kind of rush, *Juncus maritimus*, which even now grows in Egypt in the salt marshes.⁴⁶ It is 1.5–2.5 mm. in diameter, and the XVIIIth Dynasty specimens measured by Lucas varied from 16 cm.–23 cm. in length.⁴⁷ The end of such a rush was cut at a slant and then its fibres were split by chewing so as to produce a fine brush.

The pen made from a reed, *Phragmites aegyptiaca*, which is much thicker than the rush used for brushes, was first employed by the Greeks in Egypt towards the end of the Third Century B.C.⁴⁸ It was taken over by the Egyptians to write in their own writing (Hieratic and Demotic) as late as the beginning of the Christian era⁴⁹ and considerably influenced the forms of the Egyptian signs. The end of the pen was cut to a point and split in two, like the later quill pens.⁵⁰

The hieroglyphic ideogram  represents a scribe's palette⁵¹ of the earlier type. On the left a brush case made of a piece of thick hollow reed has the form of a papyrus column. On the right, a palette, presumably of wood, in which are two cavities for the black and red colours.⁵² The brush case and the palette are joined with a piece of string to each other and to a small pot for holding water. Actual brush cases coming from excavations are rare; of the two found by Carter⁵³ one is plain, while the other, which has an ornament on the upper end identical with that found in the hieroglyphic sign, is 'made of four pieces of carved wood which are let into the spaces cut in the sides at the end and bound in position by a strip of linen. The node or natural joint of the reed has been utilized for the bottom end and the top end was stopped by a rag plug'.⁵⁴

The palettes of the later type ⁵⁵ are much longer and narrower than the early type. They are made of wood or ivory ⁵⁶ and contain two circular ink-wells at the top, the upper for the black, the lower for the red; in the middle of the palette there is a slot partly covered by a sliding lid. In the slot several rush brushes were kept and are often found in modern times. The palettes with more than two colour cavities belonged to painters not to scribes. In Egyptian representations they are sometimes kept in special cases of more than half their length. ⁵⁷

Instead of wooden palettes shells were sometimes used for holding the colours, as in an Old Kingdom relief in Boston ⁵⁸ or on the left knee of the statue of King Haremhab in the Metropolitan Museum, New York. ⁵⁹

A small pot in which the scribe kept the water for dissolving the colours ⁶⁰ does not require more than a mention and the scribe's equipment is completed by a grinder for preparing the ink. This grinder consisted of a small rectangular stone with a depression in the centre and a small stone pestle or a stone or wooden spatula. ⁶¹

The scribe ⁶² is generally shown carrying his palette tied together with one, two or three papyrus rolls under his arm. ⁶³ These rolls are of full size, for immediate use he holds in the other hand a shorter roll cut off from a long one. The object hanging on a piece of string from the palette has been explained as a piece of rag ⁶⁴ to wash away the writing when correcting a mistake. Less often he carries the palette over his shoulder so that the palette hangs in front and is balanced by the brush case and water-pot hanging at the back. ⁶⁵

Egyptians wrote either standing ⁶⁶ or sitting with their legs crossed beneath them in the Oriental way. ⁶⁷ The former position could be adopted only when the scribe wrote on a small piece of papyrus. This was stiff enough to keep straight when held at the bottom by the scribe's left hand; it was, however, safer to hold the sheet at the top with the fingers of the left hand and to support it with the palm and forearm.

When writing on a roll, the Egyptian always sat and this is the position displayed by statues of scribes, the best known of them being the scribe in the Louvre. ⁶⁸ Egyptians sat either with the hind part of the body on the ground with the legs crossed in front or

with the body resting on the crossed legs. While drawings and reliefs show both positions, statues show only the former.⁶⁹ In a squatting position the loin cloth of the scribe is tightly stretched so as to provide a firm support for the papyrus. He holds in his left hand ⁷⁰ the roll from which he unrolls a piece of sufficient length and on this he writes with his right hand proceeding from right to left.⁷¹ Having covered this piece with writing, he unrolls some more, while he allows the extreme right of the roll to slip from his knees on to the ground.⁷² The palette also lies on the ground beside or in front of him. Often he keeps his writing brushes behind the right ear. He never uses a table of any kind.

We have said that the maximum height of a papyrus sheet, and consequently of a papyrus roll, was 47 cm. This was the full height which, however, was never used for books containing literary texts, but only in offices for business documents, like records of legal proceedings and accounts. As a matter of fact, for accounts this size was ideal because it provided enough space for long columns of names and figures, each with its total at the bottom, without the necessity of splitting them up into several shorter columns, with totals in the last column referring to several columns that preceded.

But this maximum height is actually found only relatively late, in the New Kingdom. Extant Old and Middle Kingdom business documents are much shorter.

The Old Kingdom material is scarce. The papyri so far measured show:

<i>Dynasty</i>	<i>Height in cm.</i>	<i>Provenance</i>
V	27.5	Pap. Berlin 11301 (reign of Isesi, letter)
VI	23.5-24	Pap. Berlin 10500 (accounts, from Sharona)
"	23.5	Pap. Berlin 9010 (legal document)
"	23	Pap. Cairo Cat. 58043 (=P. Bulak 8, letter)
"	22.2	Pap. Cairo J. E. 49623 (letter from Sakkara)
"	21	Pap. Berlin 8869 (letter from Elephantine)

also a religious text of 21 cm. (Coffin Texts papyrus belonging to Sir Alan Gardiner).

We can therefore say that rolls 21-24 cm. in height were commonly used during the VIth Dynasty in offices, but as this is approximately half the full size (47 cm.), it is still possible that full

size rolls were supplied by factories and that by mere chance no example of a full size roll or sheet has come down to us from that period.

We are much better informed about the size of papyrus in the Middle Kingdom so far as office rolls are concerned, some material from Kahun which is preserved at this College being of the greatest importance. The remainder of the material from Illahun, now in Berlin, would also be valuable for this purpose, but unfortunately it is still unpublished.

Middle Kingdom office rolls fall into two quite distinct categories, one group of documents cut from rolls showing a height varying between 33 cm.⁷³ and 29 cm.⁷⁴, 32 cm. being the commonest. The other group, of which there are only a few examples, displays a much smaller size, between 9 cm.⁷⁵ and 6 cm.⁷⁶ Between these two groups stand in isolation two examples of exceptional size, one being 26.5 cm. and the other 20.5 cm.

It is clear that the first group is the standard full size in the Middle Kingdom and Hyksos period,⁷⁷ while the second, smaller size is the result of cutting the large size in four. It is strange not to find among the business papyri a size obtained by halving the full height of 32 cm., giving one of 16 cm., the more so as this seems to be a size favoured for literature.

This medium size of 16 cm. is well represented among literary papyri by three actual rolls, the Berlin manuscripts containing the stories of Sinuhe, the Eloquent Peasant, and the Suicide,⁷⁸ but a number of variations are known, coming down as low as about 12 cm. in the Leningrad story of the Shipwrecked Sailor.⁷⁹ Examples of quartered rolls among literary papyri are few: the Berlin Papyrus containing another copy of Sinuhe and the Eloquent Peasant from the Ramesseum,⁸⁰ the Moscow mathematical papyrus,⁸¹ and the Hymns on the King's Diadems, also at Moscow.⁸²

To the group with larger dimensions (i.e. about 33 cm.) belong the Berlin Papyrus 3033 with the stories of magicians (P. Westcar) of 33.5 cm. and others diminishing in size down to the Ebers medical papyrus of 30 cm.

Between the full size and half size rolls there are two papyri with a height of 26 cm.⁸³ As Sethe has observed,⁸⁴ this is the half of

the Egyptian unit of length, the cubit of 52.5 cm., but this is probably fortuitous, since the other sizes do not coincide either with the recognized subdivisions of the cubit (7 palms) or with further halving and quartering of a cubit.

The New Kingdom can, as has already been stated, boast of the highest papyrus so far known. It is the 47-48 cm. Papyrus Greenfield in the British Museum. This is a Book of the Dead, and since it was buried with the owner, it did not matter if a roll of a size awkward to handle was used. Still, there is also at least one business papyrus which vies with it in size: a Necropolis Journal at Turin⁸⁵ of 47 cm. Various heights are known, however, between 45 cm.⁸⁶ and 38 cm.⁸⁷ A letter, P. Anastasi IX, stands alone with its 36.7 cm. And a group of Bibliothèque Nationale papyri filling the gap down to 25.6 cm. have had their edges cut in modern times and must be used only with caution. But between the legal P. Mayer B at Liverpool (about 25.6 cm.) and a legal papyrus in Cairo⁸⁸ we know of several papyri. In short, in the Ramesside Period we can clearly see two groups, one consisting of large sizes between 41 and 43 cm. in height, and a corresponding half-roll of about 21 cm. A group of papyri between 19.5 and 19 cm. in height with an average height of 18, are all of the XVIIIth Dynasty and are probably halved rolls of 36 cm. or thereabouts; though not known during this Dynasty, they are known at the beginning of the XIXth under Sethos I. Pap. Leiden 348 of 18 cm., which contains a collection of model letters, is Ramesside, but it shows palimpsest traces of accounts of earlier date and may originally have belonged to the XVIIIth Dynasty. There can therefore be hardly any doubt that we have to do with two pairs of sizes, 36 and 18 cm. (XVIIIth and early XIXth Dynasties) and 42 and 21 cm. (Ramesside).

When with this result in mind we look through New Kingdom papyri and rolls containing literary works, we discover that the large roll of 42 cm. was thought quite unsuitable. Only the Leiden Hymn to Amun with about 40 cm. belongs to this category, while papyri just over 21, 21.5 and 20 are very common in the Ramesside period, and the quartered roll of 10 cm. is represented by P. Chester Beatty II (Blinding of Truth). Papyri below 20 cm. are again found in the XVIIIth Dynasty, though the double size

of 36 cm. occurs in the Turin Love Songs (36 cm.) and the Dream-Book (35 cm.), both of the Ramesside period. There seem to be traces of a third pair of 24 cm.⁸⁹ and its half 12 cm.⁹⁰; they are very probably only subdivisions of the exceptional fullest size of 47-48 cm.⁹¹

The papyrologist Wilcken was the first to point out⁹² that in the Graeco-Roman period the side to be written upon first was that on which the writing ran parallel with the fibres, but in 1925 the Egyptologist Erman wrote⁹³ that it was impossible to say whether this rule applied also to the Pharaonic period. To-day we can formulate the following rule without fear of contradiction: The scribe wrote first on the horizontal fibres, and only after finishing with this side did he use the other side with the vertical fibres. Many exceptions to this rule seem however to exist and it is a remarkable fact that nearly all New Kingdom letters start on the side with vertical fibres. A closer examination has revealed that Wilcken's rule was not valid in the form he gave it for Pharaonic Egypt; it is even doubtful if it is valid in that form for the Graeco-Roman world.

The natural side for an Egyptian scribe to write on was the inside of the roll, as it was there that the writing was best protected, while on the outside it was—in part at least—exposed to possible damage. Now it so happened—we have seen that the reason was connected with the lie of the fibres—that inside the book the horizontal fibres were uppermost. The scribe therefore wrote first on the horizontal fibres,⁹⁴ not from any preference, but from the nature and conditions of his writing material. Certainly his reason for this was not, as some people used to think,⁹⁵ that the side with the horizontal fibres was the smoother and that it was more difficult to write on vertical fibres than on horizontal, the vertical lying at right angles to the direction of his lines and therefore offering resistance to his brush from the series of minute protuberances and ridges which he had to overcome. All early papyri have their lines written vertically until well into the XIIth Dynasty and despite that fact the side chosen first was that with the horizontal fibres. Besides, as we have mentioned already, most of the later letters start on the side with the fibres running vertically in relation to the lines of writing, which were already horizontal at that period.

The Egyptians, we know, wrote holding the roll in the left hand and unrolling only as much as was necessary for writing. The scribe wrote with his right hand starting at the extreme right of the roll, and in vertical lines. All this was quite natural: vertical lines required that the writing material should be moved slowly in accordance with the speed with which the lines were written and in one direction only, that is a direction at right angles to the direction of the writing, while horizontal lines necessitated the alternate shifting either of the hand or of the writing material, and in the case of the papyrus also unrolling more of the papyrus than was necessary for one vertical line. Vertical lines were the natural and original direction also in Babylonian and Chinese writing, and when horizontal lines were introduced the way called boustrophedon was chosen for the direction of writing. Rolls of moderate height, we saw, to 24 cm., were used at this period of vertical lines to avoid a long shift of the hand from the bottom of a line to the top of the next.

When the inside space of the roll was fully covered with writing and the scribe had still more to write, two alternatives were open to him. He could either paste new paper sheets on to the end of the roll and continue to write on the same side; this was the custom during the period before the XIIth Dynasty, when writing on the verso was avoided as far as possible in writing books.⁹⁶ Or when he had no spare paper to add, or when the papyrus had become too expensive, he could turn the roll along its vertical axis and continue on the back, that is, starting against the end of the recto and having the top of the recto again at the top.⁹⁷ When he had finished writing he of course rolled the book so as to have in the centre of the roll the end of the text on the recto and with it the part written on the back; in this way the whole of the text, that on the recto and that on the verso, was well protected.

When the scribe wanted to write a letter, he wrote only as much on the inside (i.e. horizontal fibres) as he thought would amount to about half of the whole communication; he then cut the inscribed piece off vertically, turned the written piece round, and finished his letter on the back, that is, on the fibres running vertically and this time parallel with the vertical lines of writing.

Vertical lines had one disadvantage—a freshly-written line

could easily be smudged by the hand while writing the next line. This was probably the reason why, during the XIIIth Dynasty, a shift from vertical to horizontal lines took place, both directions being used indiscriminately for some time, even in the same manuscript.⁹⁸ After the complete victory of horizontal writing the vertical direction occurs only exceptionally for titles belonging to several horizontal lines,⁹⁹ exactly as before the horizontal ones had been adopted when referring to several vertical lines.¹⁰⁰ All this applies to hieratic; hieroglyphs in manuscripts of the Book of the Dead and other religious texts were written until the end in vertical lines running—for reasons which are not yet clear—from left to right.

When the writing or reading of an ordinary book or document was finished, the papyrus was again rolled back, so that the end was inside; the roll was thus ready for a new reader to start from the extreme right. Only rarely were rolls found with the left end exposed, indicating that the reader had not re-rolled it into its original state.¹⁰¹

Since the beginning of the roll was exposed, a margin was always left between the vertical edge and the first line. In this way, if any damage was done to the beginning of the roll, it did not affect the written text. Often this edge and the blank space of the margin were strengthened by a narrow strip of papyrus of 5 to 9 cm. in width pasted vertically along the edge, with its fibres running at right angles to the edge. The thickness of the papyrus was therefore double at this spot and the risk of tearing the papyrus was consequently lessened.¹⁰² The protective strip of P. Berlin 3006 (Book of Dead, XXIst Dynasty) is 5 cm., another, P. 3013, is 9 cm. wide.¹⁰³ Less frequently the double thickness is found also at the end of a roll.¹⁰⁴

Furthermore, the vertical lines did not start at the very top and continue down to the very bottom of the roll. The papyrus underwent a certain amount of fraying at the top and bottom, that is at the two ends of the cylinder; here it was not advisable to protect it by pasting new strips of papyrus along the edges, for that would have rendered the papyrus too stiff to roll; ¹⁰⁵ a few centimetres were therefore left blank along the top and bottom edges.

While the vertical lines run uniformly from right to left at

regular intervals along the whole surface of the papyrus, horizontal lines necessitated a totally different arrangement. They could not run across the whole length of the roll, for each line would have involved unrolling the whole length to read it and re-rolling again to return to the beginning of the next line. For horizontal lines therefore a suitable length was chosen which varies from book to book and even within the same book. A number of horizontal lines was written each time, one below the other, and when the bottom of the papyrus had been reached, a blank space was left at the left of this sequence of lines and then a new series of lines was written, this procedure being repeated till the text was completed. The book is in this way divided into a number of columns or pages with blank spaces of 1.5 to 3 cm. between them.¹⁰⁶ In Greek papyri they are called *σελίδες*, a term applied originally to the benches of oarsmen on a ship. In Egyptian manuscripts, even in the best ones, the blanks are sometimes so narrow that the ends of the lines of one column nearly touch the beginnings of those of the next,¹⁰⁷ and the scribe thought it advisable to separate them in places by irregular vertical lines.¹⁰⁸

The number of horizontal lines in a column depends, of course, on the height of the roll chosen; in various columns of the same papyrus it is hardly ever the same, though the variation is mostly slight. So while in P. Berlin 3023 (Eloquent Peasant) the number of horizontal lines varies between 8 and 14 (height 16 cm.), in P. Berlin 3022 (Sinuhe) the seven columns have 13, 14, and 17 lines (height 16 cm.), in P. Berlin 10499 (height 8.2 cm.) of the thirty-three columns thirty-two have 7 or 8 lines, and only one has 6 lines; in P. Westcar pp. 1-5 have 25 lines each, pp. 6-8 have 26, p. 9 has 27 and pp. 10-12 again 26 lines. The length of lines in the same columns varies too.

While writing the scribe did not avoid the joins, or junctions where the sheets forming the roll were pasted together. When made in the factory they were carefully executed and smoothed, and since the roll was nearly always so made that the right hand sheet overlapped the left hand sheet, the brush passed easily over the join. When, however, the scribe came to a join made by himself and therefore coarser, he avoided it by shortening or lengthening the lines accordingly, as in P. Berlin 3027 (Magical spells for

Mother and Child) before reaching the fifth join counting from the right-hand end of the papyrus. The scribe of P. Chester-Beatty V avoided the joins regularly, consequently each sheet is occupied by a complete column or page of writing;¹⁰⁹ in other manuscripts columns were arranged without regard to the sheets, a sheet containing mostly two columns,¹¹⁰ sometimes, however, one and part of another, part of the column extending over the join into the next sheet.

The numbering of pages was uncommon. So far, it has been found only in P. Ebers, the pages of which are numbered from 1 to 110, with the omission of 28 and 29, and then quite late in a Cairo papyrus containing Demotic stories of the High Priests of Memphis from the first half of the Ptolemaic period.

We must now proceed to investigate why in a number of papyri containing letters, reports and legal documents, the front—by which we mean the side on which the text starts—is found written on fibres running vertically. At first sight it would seem that such documents were begun by the scribe on the outside of the roll (vertical fibres), then cut off and finished on the inside. Fortunately, the true proceeding is revealed by such of these documents as show the joins; these always run parallel with the lines, that is at right angles to the vertical fibres. And as this was exactly their position inside the roll, there is no doubt that to write such documents the scribe did not place his roll on his knees as when he wanted to write a book, that is holding the roll in his left hand and unrolling it from right to left, but he placed the roll at right angles to his body and unrolled it towards himself. The fibres of the inside of the roll which were normally horizontal became in this way vertical. When he had written a suitable part of his text, he separated the written piece by a cut running from his left to his right (parallel with the joins), turned it along the cut and finished on the other side, i.e. on the original vertical fibres, which however were now horizontal. The top of the verso of the document, too, was thus placed against the bottom of the recto.

I know of no document written in this way earlier than the second half of the XVIIIth Dynasty. The Old Kingdom and Middle Kingdom letters all begin on the horizontal fibres, that is, they are written like a literary text on a roll placed horizontally.

The earliest documents written in the new way are the four legal papyri from Kahun (two at University College and two in Berlin P. 9784 and 9785) from year 27 and 33 of Amenophis III and year 4 of Amenophis IV, but this way of writing becomes quite common after that. The papyrus relating the misfortunes of Wenamūn in Syria in the XXIst Dynasty is also written in this way and therefore is not a literary work, as has been believed, but—in accordance with its style and language—a real report. As such, it is almost certainly the original report and there is no hope that another copy supplying its missing part will emerge elsewhere, as would be possible with a literary work existing in a number of copies.

In this connexion it is interesting to note that this position of the roll is clearly the *transversa charta* of Suetonius¹¹¹ who relates that Caesar when writing his letters first adopted the page method of writing and the diary form (*memoralis libelli*), though before that consuls wrote their letters 'transversa charta'. They wrote, like Egyptians of the New Kingdom, across the roll on the fibres running then vertically, while Caesar first adopted the method of writing letters on the horizontal fibres and in columns, like a literary text.

Not infrequently scribes used the empty backs of older books or documents as writing material for new texts. So, for instance, a roll containing accounts of taxes paid by the Western Oases bears on its verso (=outside) a list of Egyptian Kings of the first seventeen dynasties, one of the most important documents bearing on the history of Egypt that have come down to us, unfortunately broken into many fragments.

When the 'scribe of accounts' Khaemwōse desired to copy for himself the teaching of the King Merikerē and the prophecies of Neferreḥu (P. Leningrad 1116A and B), he wrote them on the back of two rolls containing accounts of grain and timber. He appropriated two old rolls from the archives of his office, but finding them too high for his purpose, cut them roughly into two halves. The accounts on the recto therefore preserve only lower halves of the original columns of accounts.¹¹²

Upper or lower halves of originally larger rolls are not uncommon, but when they have not been used again for a new text, it is difficult to say whether they were cut in antiquity or in modern

times. When two natives find a large roll they often cut it in two between themselves, as each hopes to sell his part separately and so to get more for it than he would from a half-share of the intact roll.¹¹³

When the roll was inscribed on both sides¹¹⁴ and the ancient scribe wished to use it again, he washed away the old text on one side or on both, and wrote there anew, thus producing what we call a palimpsest.¹¹⁵ Often the washing off was done very carelessly and many traces of the previous writing may still be seen. But as Egyptian ink consisted only of carbon and gum mixed with water it does not react to any chemical and is thus unlike the iron ink of mediaeval palimpsest manuscripts; the latter can be revived chemically, the more so, as the pen scratches the surface of the paper or vellum.

These frequent palimpsests can best be explained if we assume that papyrus was a relatively expensive material. That is also why, especially during the Ramesside period, substitutes for it, such as pieces of limestone or sherds (so-called ostraca), were commonly used for texts of ephemeral importance. On the other hand there must have been plenty of old inscribed rolls everywhere, as the consumption of papyrus in the highly developed administration was enormous, though we do not possess in this respect such written testimonies as we have for the Graeco-Roman period, when in a single office of the minister Apollonius as many as 60 rolls were used in 10 days, and in 258/257 B.C. some offices of Apollonius utilized 434 rolls in 33 days.¹¹⁶

When the verso of an old roll was used for writing, the scribe proceeded in a different way from the one which has already been described, and which he adopted when his text on the verso was a simple continuation of that on the recto. Instead of starting from the inside, the left-hand edge of the papyrus now on his right with the folded roll on his left, he took the roll, unrolled a part at the beginning of the recto, turned the papyrus round the bottom edge and wrote the first page of the verso against the first page of the recto. The top edge of the verso was then identical with the bottom edge of the recto.¹¹⁷

In order to obtain writing of equal blackness the scribe had to dip his brush in the ink very often, otherwise his signs became

paler and paler until sometimes the brush was so dry that only a few fibres caught the paper, writing lines which had only the thickness of a hair instead of rich black signs. It has been observed, for example, that in the VIth Dynasty letter P. Cairo J.E. 49623 the scribe wrote on the average eight or nine signs with one dip of his brush,¹¹⁸ in P. Prisse not more than five or six¹¹⁹ and in another unpublished New Kingdom letter I have seen recently about half of the line.

The use of red ink in earlier periods was limited.¹²⁰ We have no literary texts from the Old Kingdom and cannot see how far the red ink was used in them. In business documents the two inks served to distinguish two sets of items; it is in that period that the habit of referring by different colours to the two kinds of Egyptian cereals probably originates: measures and figures of barley are written in black, those of spelt in red.¹²¹ In dates the month and the day are written in red as early as the Middle Kingdom¹²² though not consistently;¹²³ also the headings, and in literary texts the opening words and the beginning of new sections.¹²⁴ The latter habit persisted throughout all periods and is still reflected in our term 'rubric'—the words so described ought, of course, to be in red. The concluding words of a book were also often written in red.

When the scribe made a mistake in writing and noticed it immediately, he washed away the incorrect signs and wrote the correct text in their stead. Though he seems to have had a piece of rag for washing purposes, he probably often simply licked away the ink, since the word *fit* for 'obliterate (an inscription)' is determined by the image of a tongue and a man with his hand on his mouth.¹²⁵ When the mistake was too extensive and the scribe became aware of it too late, he had to cut out the part of the text in question and paste the papyrus together again.¹²⁶

When reading through a text which he had written, an Egyptian sometimes made dots in red above signs at certain intervals. These dots used to be considered as marking and separating verses. But their use is by no means restricted to poetry. A detailed study of them has revealed that they are a kind of punctuation¹²⁷ which has nothing to do with the writing of the text. It was added later during the reading, its purpose being to make the meaning clearer and

to show the correct division and accentuation of the text. In some manuscripts this punctuation has not been inserted throughout, but only in certain parts which are clearly only those which the scribe re-read or recited afterwards.

While using red ink for these dots the scribe, when necessary, corrected mistakes in red ink too, though otherwise he did not bother to switch from black ink to red when making corrections. The words which he had omitted he added above the line, if there was enough room; if not he made a cross in the text and added the missing word or words above or below the page in the blank margin. So in P. Ebers, p. 31 the scribe had omitted one line and a half in line 2 and added them later above the page, and again on pp. 40, 45, 59, and 104.¹²⁸ These corrections were difficult to recognize as such, because the scribe had marked a cross in the text, but not before the correction itself, while the scribe of P. mag. Harris marks a cross both in the text (6, 12) and before the words to be inserted;¹²⁹ and this is what the scribe of the Book of the Dead of Princess Kamarē in the XXIst Dynasty does.¹³⁰

The copy of the Book of the Dead of Iuya of the XVIIIth Dynasty closes with the following words: '[the book] is completed from its beginning to its end as it was found written, having been copied, revised, compared, and verified sign by sign'.¹³¹ In this particular case this statement may be correct, but it is certain that most scribes took much less care in doing their work, which no eye would ever see, with the result that the Book of the Dead, though it has come down to us in many copies, has done so in a state of extreme corruption. No wonder then, that the establishment of its correct text and its interpretation are among the most difficult tasks in Egyptian philology.

As far as technique and outward beauty are concerned the Book of the Dead, however, together with religious literature of a similar character, marks the peak of the Egyptian art of book writing and deserves therefore fuller consideration.

The custom of adding religious literature written on papyrus to the funerary equipment of the Egyptian dead becomes general only from the XVIIIth Dynasty onwards. This literature had existed before, but in the Middle Kingdom such texts were written inside the wooden coffins, on their walls, and still earlier, towards

the end of the Old Kingdom they are found only on the walls of the inner chambers of a certain number of the pyramids of kings and queens. There are various indications, however, that even in their earliest known form these texts had already undergone a long process of development in the course of a transmission which was at first purely oral; only later did the need arise to include written copies of such compositions in the equipment accompanying the dead into the other world.

This literature consists of a collection of spells which were recited and the magical power of which was believed to make access to the world beyond and existence there possible or easier for the dead. Their original purpose, therefore, was clearly not to amuse or instruct the owner, but was purely utilitarian, and such it remained. The oldest papyri recording these texts that have survived differ however in no way from the secular books: they are written in black ink in hieratic writing, in vertical lines as was then customary, and without any decoration;¹³² in fact it is doubtful whether these early copies had ever been deposited in a tomb; if not, they may well be specimens of the very books from which funerary priests for ages past had recited the spells during funerary ceremonies.¹³³

In the XVIIIth Dynasty¹³⁴ the Book of the Dead written on papyrus is commonly found in the tombs of people of means, though most of the examples preserved in our museums and collections date from the later period, i.e. from 1000 B.C. onwards. The earliest copies found *in situ* in the coffin on the mummy of the deceased are probably those of the chief-workman Kha¹³⁵ and that of Iuya¹³⁶ who both died under Amenophis III. Those copies were written in archaic hieratic (c. IIIrd Dynasty) and in vertical columns separated by lines¹³⁷—a habit never exemplified in ordinary Egyptian books of any period—running either from right to left¹³⁸ or very often from left to right.¹³⁹ The latter, so-called retrograde order of lines, the origin and purpose of which is rather obscure, necessitates rolling the book with the right-hand end inside and leaving the left extremity free.

The contents consist of 'spells', which we usually call less correctly chapters, although their number, choice, and order vary from manuscript to manuscript. There is hardly one that contains

them all. The long tradition during which the Book of the Dead was copied countless times, resulted in considerable corruption to its text, but this does not seem to have disturbed the owner at all. All that counted was the exterior, and in this respect we must concede that some copies are really magnificent. For apart from calligraphic writing they are illustrated with scenes referring to particular 'spells'. In the XVIIIth Dynasty they are simple¹⁴⁰ and sparingly used, but even then and especially later¹⁴¹ these illustrations are coloured; the Book of the Dead may be called the first illustrated book in the world. Egyptologists have coined the word 'vignettes' for these illustrations. The quality of the illustration is in inverse relation with the correctness of the text—it is probably safe to say that the better the pictures in the Book of the Dead, the worse the text.

Often, the Book of the Dead was written not to order but for a bookseller's stock; in fact quite a book trade may be said to have existed. A manuscript written for stock is easily detected, for the scribe leaves a blank space in the column, which can be observed to have been filled later with the names and the titles of the purchaser. These additions are usually written in a more cursive way than the manuscript itself, or clearly by a different hand or, being too long or too short for the blank, are clumsily squeezed in, or do not fully occupy the blank. Sometimes, through inadvertence they were omitted.¹⁴²

Generally speaking the text of the whole roll was first written and the illustrations added later. In P. Brit. Mus. 10471 (of Nakht, early XIXth Dynasty) they are 'painted in a register above the text and do not always correspond with it in position'.¹⁴³ In the Book of the Dead of Ani on p. 14, l. 1, the 'red writing goes down into the three border lines. This part has not been painted yellow and red; consequently writing was there already, when colouring was being done'.¹⁴⁴

The procedure was investigated in detail and described by Borchardt¹⁴⁵ on P. Berlin 3002 (of Nakhtamūn). There, the whole space to be inscribed was delimited at the top and the bottom by four parallel horizontal lines, the position of which had been previously marked by dots. The space between the upper and lower row of horizontal lines was then marked out for vertical

lines, also by dots. These were put at regular intervals on one of the horizontal lines, but at those places where space for illustration had to be left, these dots were placed not on the same horizontal line, but on another one.

It was, of course, difficult to estimate in advance the exact space needed for illustrations. In the late P. Berlin 3026 the scribe left blank spaces for the draughtsman. Where two or more illustrations were to go into one blank space, he divided them by lines into the necessary number of compartments, even numbering them throughout in red; but the draughtsman took no notice of the numbers, so that his sixty-four illustrations are for the most part in the wrong places.¹⁴⁶ If carelessness of this kind went on for centuries, it is not surprising to find such textual corruption.

Comparison of various manuscripts of the same text has suggested that there is a class of errors which can only be explained as arising from dictation, but we have no proof that dictation to several scribes was ever employed so as to produce concurrently several copies of the same work, as in the Roman scriptoria.

It often happened that the scribe copying a manuscript could not read the original, especially if the latter was an old book written in a hand with which he was not fully familiar, or in which the original was damaged at some point, e.g. by a hole in the papyrus. If he was conscientious, he left a blank space in his copy, to warn the reader that something was missing, perhaps intending to fill it in later from a better manuscript.¹⁴⁷ When a copy with blank spaces served as a model for another copy, the scribes often put a kind of 'sic' in the lacuna by writing there the words *gm wšr* 'found missing'¹⁴⁸ or *šw m iry. f* 'void of what belongs there'.¹⁴⁹ Less conscientious scribes, however, omitted the lacuna, thus making the text continuous. In other cases the warning remark passed into the text.

The text of an Egyptian book either begins with the title or starts *in medias res*; in the latter case the title perhaps stood at the beginning of the verso visible to anybody who took the book in his hand. Apart from the first words being written in red ink, nothing marked the beginning; the first line started at exactly the same distance from the margin as the following. The new chapters or important new sections were often written immediately after

the end of the preceding ones; often, however, the rest of the line was left blank and the new chapter started on a new line without any space being left at the beginning of the latter.

The book ended as unobtrusively as it started. Suddenly the reader met the words *iw. f pw*, not even always in red, and this obscure expression 'it (=the book) comes' announced the end. Sometimes an assurance '(being) from its beginning to its end as it has been found written' was added, or 'it comes well' or 'in peace'¹⁵⁰, mostly also with the title and the name of the copyist.

To the name of the author little importance seems to have been attached, and the achievements of Egyptian authors are almost as anonymous as other products of Egyptian art, architecture, sculpture, and painting. If the name of the author is mentioned at all, it stands immediately after the title at the beginning, introduced by a modest formula *ir n* 'made by' so and so.

The title of the book or the contents of the roll would appear to have been placed in a docket at the beginning of the verso, in order to be visible when the papyrus was rolled and thus save the unrolling of the book in order to ascertain its contents. Unfortunately, the extreme right of the papyrus generally tends to suffer terribly or is lost, so that relatively few cases of the title written outside the roll have come down to us. They are written across the papyrus when in hieratic; on hieroglyphic copies of the Book of the Dead they of course run in a hieroglyphic vertical line. So the Book of the Dead of the Princess Gatseshen bears the title 'Book of the coming (to) the day of the Osiris Ga[tseshen], daughter of Menkheperre'.¹⁵¹ As examples of secular documents let us quote the testament of Naunakhte marked as 'Declaratory deed w[hich the citizeness Nau]nakhte [made] of (?) their (*sic*) property';¹⁵² P. Brit. Mus. 10054, relating to thefts in the Necropolis, is docketed 'The examination of the thieves'¹⁵³ and an unpublished fragment in the Bibl. Nat. Paris¹⁵⁴ bears the words 'Testamentary deed made by the King [Amenophis I] . . .' possibly relating to some approval of a testament by the oracle of the deified King Amenophis I.

Two XXIst Dynasty Books of the Dead, P. Berlin 3011 and 3013, bear at the top of the papyrus at the beginning of the verso the sign for 'top' showing the reader how to hold the papyrus and saving him from possibly unrolling it upside down.¹⁵⁵

So far we have in the extant inscriptions or texts no indication concerning the price of papyrus, and only once¹⁵⁶ are we told the price of a book. A Book of the Dead 'painted' is valued at 1 *deben* (=91 gr.) and a few lines further on another copy of the Book of the Dead at 3 and a fraction of a 'piece' *š't* (=cc. 2.3 gr.) by which very probably the weight of silver is to be understood. But this helps us little, as data are lacking which would enable us to relate its cost to those of other commodities.

Papyrus documents and rolls were kept in wooden chests or in jars. Chests are often represented lying on the ground in front of scribes;¹⁵⁷ the ten Vith Dynasty papyrus rolls from Gebelēn were found in a wooden box¹⁵⁸ and so were the papyri in a tomb behind the Ramesseum. A small faience label in Brit. Mus. 22878 with the name of Amenhotep III and his Queen Tiy, was undoubtedly fixed to such a box which according to the label contained *md3t nht bnr(t)* 'the book of the sweet sycamore',¹⁵⁹ and a similar but broken label is in America.¹⁶⁰ They probably come from a library of that King, but we have no idea how such libraries were organized.

Some documents, among them papyri concerning tomb-robberies, are said in P. Vienna No. 30¹⁶¹ to have been found and bought in jars (*kbw*) and Passalacqua states that the P. med. Berlin 3038 was found at Sakkara in a pot together with the legal P. Berlin 3047.¹⁶²

It can be seen that papyrus and papyrus books passed through some changes but underwent no real development in Ancient Egypt. In fact they needed no development, they were perfect from their inception and satisfied the requirements of the ancient civilization entirely. The papyrus roll had existed for over three thousand years before it began to be superseded by a new book form resembling ours, the codex, which is an imitation of a series of wax tablets tied together by a string passing through holes on one of their vertical sides. The details, however, of the character of both papyrus and papyrus book need further study. Material is plentiful in museums and collections, but requires a detailed investigation of originals; the texts written on papyrus have already been published to a great extent, but the publications, especially the older ones, contain hardly anything that can be used for descriptive bibliographical study of papyri. Many more papyri too may

legitimately be expected to emerge from the soil in Egypt, for the time is certainly over when papyri were destroyed out of ignorance. Nowadays probably every Egyptian peasant knows that a papyrus is worth hundreds if not thousands of pounds, and so there is no danger that a disaster of the kind which occurred in the year 1778 will again take place. In that year, forty or fifty Greek papyri were found near Giza, but only one was saved for the Museum of Cardinal Borgia at Rome, the rest having been burnt by the natives because of the pleasant smell of burning papyrus.¹⁶³

REFERENCES

- 1 cf. *The Legacy of Egypt* (Oxford, 1942), ed. S. R. K. Glanville, for a condensed and matter of fact treatment of Egypt's contribution to modern civilization.
- 2 It is indeed a problem whether and to what extent the invention of paper in China about A.D. 100 was influenced by acquaintance with Egyptian papyrus.
- 3 *A Companion to Greek Studies* (4th ed. Cambridge, 1931), p. 606.
- 4 Gardiner, in *The Legacy of Egypt* (Oxford, 1942), pp. 54-5.
- 5 cf. H. G. Christensen in *Orientalistische Literaturzeitung*, xli (1938), col. 204-5.
- 6 That πάπυρος bears greater similarity to the Bohairic form than to the Sa'idic (Upper Egyptian) *nanḥpo naturally makes the etymology still more plausible, as it was certainly in the Delta where the Greeks became first acquainted with papyrus.
- 7 πoογγ in Sa'idic, ɣomḡ or ɣonḡ in Bohairic. There was also a 'Papyrus' city in the Delta, on which cf. Gardiner, *Journal of Egyptian Archaeology*, v (1918), 186n1.
- 8 *Nat. Hist.* xiii, 74 sqq.
- 9 Davies, *The Tomb of Puyemrê at Thebes* (N. York, 1922-23), Pls. xviii and xix; cf. Ch. Desroches-Noblecourt, *Le papyrus*, p. 7.
- 10 Schenk (in Ebers, *Papyros Ebers* (Leipzig, 1875), p. 3) examined a fragment of the Book of the Dead belonging to the Leipzig Library, and says that it consisted of three coarse layers of fibres. I have never encountered a three-layered papyrus.
- 11 Bruce, *Travels to discover the Sources of the Nile* (London, 1805), vii, 117-31, cited by Lucas, *Ancient Egyptian Materials and Industries* (3rd ed., London, 1948), pp. 163-4.
- 12 *loc. cit.*
- 13 cf. Lucas, *loc. cit.*
- 14 Mentioned by Sethe, 'Die Totenliteratur der alten Ägypter' in *Sitzungsber. der Preuss. Ak. d. Wissenschaften, Phil. hist. Kl.* (Berlin, 1931), p. 529n3.
- 15 m. i. 9: 'Lutea sed niveum involvat membrana libellum'.
- 16 For indications of colour recorded for the Old Kingdom, cf. W. S. Smith, *A History of Egyptian Sculpture and Painting in the Old Kingdom* (London, 1946), pp. 369-370, 372, 382.
- 17 Junker, Giza, vii (Vienna, 1944), 108.
- 18 *Zeitschr. f. äg. Sprache*, xxvii (1889), 118 sqq.
- 19 cf. Möller, *Hierat. Paläographie*, i (Leipzig, 1909), 5n1.
- 20 On some Old Kingdom statues the fingers placed under a papyrus are indicated by slight protuberances or even by the brown colour of the skin through the papyrus. The latter therefore was meant to be very thin and even translucent; cf. Junker, *op. cit.*, p. 110.

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- 21 Papyrus Ebers (Leipzig, 1875), p. 3.
- 22 Möller, *op. cit.*, I, 4.
- 23 Lucas, *op. cit.*, 164.
- 24 Medinet Habu (*The Univ. of Chicago Oriental Inst. Publications*), Vol. III, (Chicago, 1934), Pl. 150, line 548, and Posener in *Mélanges Maspero (Mémoires de l'Inst. franç. d'arch. orientale, vol. LXVI)*, I, 333-4.
- 25 N.H. XIII, 77: *inter se iunguntur . . . numquam plures scapo quam vicinae*. However, as Professor Turner informs me, in the Zenon Papyri (P. Cairo Zeno I, 59054.46) there turn up *χάρτας πεντηκοντακόλλους*, i.e. of 50 sheets, apparently fresh from the factory.
- 26 Grohman in *The Encyclopaedia of Islam*, Supplement (Leiden, 1937), s.v. *Kirtās*.
- 27 Borchardt, *Zeitschr. f. äg. Sprache*, XXVII (1889), 120.
- 28 The numbers in P. Budler in the British Museum do not indicate sheets, as Borchardt (*loc. cit.*) thought. They are line-numberings; cf. Möller, *op. cit.*, I, 5, Anm. 4.
- 29 Ibscher in Wreszinski, *Der grosse med. Papyrus des Berliner Mus.* (Leipzig, 1909), P. v.
- 30 cf. P. Berlin 10487, a letter where the join runs under line 4 of the recto. The upper part of the letter is written on vertical, the lower on horizontal, lines.
- 31 Erman, 'Zaubersprüche f. Mutter und Kind' in *Abh. d. Preuss. Ak. d. Wiss.* (Berlin, 1901), p. 5, Anm. 3.
- 32 Wilcken, *Hermes* XXII (1887), 490n1.
- 33 *Zeitschr. f. äg. Spr.*: XXVII (1889), 119. Borchardt obtained this and other results not on actual rolls, but on unrolled papyri by measuring the distances between breaks and holes occurring at regular intervals.
- 34 cf. Guéraud, *Annales du Service*, XLIV (1944), 244. It appears that Herculaneum papyri, besides wooden sticks, sometimes showed '*bastoncelli . . . pure formati di semplice papiro strettamente agglomerato a tal uso*' (quoted by Th. Birt, *Die Buchrolle in der Kunst* (Leipzig, 1907), p. 229).
- 35 Ostraca from Helwān (Zaki Youssef Saad, *Royal Excavations at Saqqara and Helwan, 1941-1945* (Cairo, 1947), Pl. XLII, XLIII.
- 36 Inscriptions on alabaster vases found round and under the Step Pyramid at Sakkara (Firth-Quibell-Lauer, *The Step Pyramid*, Vol. II (Cairo, 1935), Pl. 106, 107; *Annales du Service*, XXXIV (1934), Pl. III).
- 37 Möller, *op. cit.*, I, 1.
- 38 Petrie, *Royal Tombs*, II (London, 1901), Pl. XXI, No. 164; cf. Hilda Petrie, *Egyptian Hieroglyphs of the First and Second Dynasties* (London, 1927), No. 984.
- 39 Petrie, *Royal Tombs*, I (London, 1900), Pl. XXXI, 43; II, Pl. XXI, 166; Pl. XXXI, 189; cf. Hilda Petrie, *op. cit.*, Nos. 981-3.
- 40 Emery, *The Tomb of Hemaka* (Cairo, 1938), p. 41.
- 41 Often represented on Middle Kingdom coffins; cf. Jéquier, *Frises d'objets* (Cairo, 1921), pp. 263-8.
- 42 On Egyptian inks, cf. Lucas, 'The Inks of Ancient and Modern Egypt' in *Analyst*, XLVII (1922), pp. 9-14.
- 43 Lucas, *op. cit.*, pp. 414-15.
- 44 Exceptional case where ink corrodes the writing material (linen) is quoted by Daressy, *Annales du Service*, IV (1903), 152n; against the custom some acid was probably added to the ink.
- 45 Lucas, *ibid.*
- 46 cf. Mart. XIV, 38: *Dat chartis habiles calamos Memphitica tellus; texantur reliquo tecta palude tibi*.
- 47 Lucas, *op. cit.*, p. 417. Specimens measured by Glanville varied from 12.2 to

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25.2 cm. (*Journal of Egyptian Archaeology*, xviii (1932), 55), from 26.25 to 31.25 cm. (*ibid.*, p. 59); in one case the length was 29.4 cm., in another two brushes were short, 12.8 cm. and 11.25 cm. (*ibid.* p. 61).

48 Möller, *Hierat. Pal.* (Leipzig, 1912), 2, III, Anm. 2. Möller owes this date to a communication by Schubart; it must, however, be a mistake, since, as Professor Turner pointed out to me, a pen is used by the Greeks in the earliest written Greek papyri known, namely from the end of the Fourth Century B.C.

49 Möller, *loc. cit.*

50 Lucas, *op. cit.*, p. 417.

51 Lucas, *op. cit.*, p. 418.

52 For an actual example of this older type of palette, cf. Petrie, *Gizeh and Rifeh* (London, 1907), Pl. III.

53 Carnarvon-Carter, *Five Years' Explorations at Thebes* (London, 1912), Pl. LXVI, and pp. 70, 75, from the Second Intermediate period.

54 Carnarvon-Carter, *op. cit.*, p. 75.

55 Many specimens are known. Those in the British Museum have been published by Glanville, *Journal of Egyptian Archaeology*, xviii (1932), 53-61.

56 Palettes made of stone (alabaster, limestone, green slate) are votive or funerary and are not intended for actual use.

57 Jéquier, *Frises d'objets* (Cairo, 1921), p. 265; Figs. 699, 700; Von Bissing, *Die Mastaba des Gem-ni-Kai*, I (Berlin, 1905), Pl. XXXIX, 210.

58 J. Pijoán, *Summa Artis*, III, *El Arte Egipcio* (Madrid-Barcelona, 1945), p. 178; Junker, *Giza*, II, Figs. 18, 19.

59 Winlock, *Journal of Egyptian Archaeology*, x (1924), 1.

60 Jéquier, *Frises d'objets* (Cairo, 1921), p. 266; Balcz, *Mitt. des Deutschen Inst. . . in Kairo*, IV (1933), 214-15.

61 Jéquier, *op. cit.*, pp. 267-8; Lucas, *op. cit.*, p. 418.

62 Scribes in reliefs, collected by Klebs, *Die Reliefs des Alten Reiches* (Heidelberg, 1915), pp. 38-40.

63 Steindorff, *Das Grab des Ti* (Leipzig, 1913), Pl. 23-5, 115, 121 (=122); v. Bissing, *op. cit.*, I, Pl. XIII; II, Pl. V, XII.

64 Jéquier, *op. cit.*, p. 265.

65 Wooden relief of Hesy, Cairo Museum.

66 Von Bissing, *op. cit.*, I, Pl. XIX; Schäfer, *Von äg. Kunst* (3rd ed., Leipzig, 1930), Pl. 13, I.

67 Steindorff, *op. cit.*, Pl. 85, 129; von Bissing, *op. cit.*, I, Pl. XII.

68 Von Bissing, *Denkmäler äg. Sculptur* (München, 1911-14), Pl. 11B; Desroches-Noblecourt, *Le papyrus*, Fig. 13.

69 Junker, *Giza VII* (Vienna, 1944), 106.

70 On details of the fingers, see Junker, *op. cit.*, p. 110.

71 Borchardt, *Statuen u. Statuetten* (Catalogue général . . . du Musée du Caire), Nos. 36, 887, 1138, 1169, 1221; Legrain, *Statues et statuettes* (Catalogue général . . . du Musée du Caire), Nos. 42037, '038, '125, '162, '184, '190; Berlin, 15701 (=Fechheimer, *Die Plastik der Ägypter* (Berlin, 1923), pp. 25-7).

72 cf. the statue of Haremhab, *Journal of Egyptian Archaeology*, x (1924), Pl. III.

73 P. Kahun xvii. 3 (Pl. xxv), an empty sheet with one column of calendar in the middle.

74 P. Berlin 10025, letter from Illahun.

75 P. Kahun VI, 8 (Pl. XXXII), letter.

76 P. Kahun III, 6 (Pl. XXXIV), letter.

77 Möller, *op. cit.* I, 6, following Erman, 'Zauberspr. f. Mutter u. Kind' in *Abh. d. Preuss. Ak. d. Wiss.* (Berlin, 1901), p. 5.

78 P. Berlin 3022 (Sinuhe), 3023 (Eloquent Peasant), 3024 (Suicide).

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- 79 P. Leningrad 1115.
- 80 P. Berlin 10499 with 8.2 cm.
- 81 With 8 cm.
- 82 With 7 cm.
- 83 Dramatic text from Ramesseum and an early manuscript of the Book of the Dead (Berlin, P. 10482).
- 84 Sethe, *Dram. Texte zu altäg. Mysterienspielen* (Leipzig, 1928), p. 86.
- 85 Of year 13, probably of Ramesses IX (Botti-Peet, *Il Giornale della Necropoli di Tebe* (Turin, 1928), p. 8).
- 86 Pap. Brit. Mus. 10403.
- 87 P. Salt (Brit. Mus. 10055).
- 88 Cairo J. E. 65739 (20 cent.).
- 89 P. Brit. Mus. 10509 (Ptahhotep), Anastasi IIIA, and Anastasi VI.
- 90 P. Chester Beatty VII is 14 cm.; P. Bulak 17 (Hymn to Amün) 12.5 cm.; P. Bulak 6 is 11 cm.
- 91 P. Anastasi IV with 27-8 cm. does not fit any category at all.
- 92 *Hermes*, xxii (1887), 489.
- 93 Erman, 'Die äg. Schülerhandschriften' in *Abh. d. Preuss. Ak. d. Wiss.* (Berlin, 1925), p. 6.
- 94 Möller, *op. cit.*, I, 6, quotes as the only exception known to him the Berlin Pap. 10001 from Illahun: the side with vertical fibres was used first for writing rules for 'tenants' (*intiw-š*), while the other side contains a business text.
- 95 Also Möller, *op. cit.*, I, 5.
- 96 Among Middle Kingdom papyri only P. Berlin 3023 (Peasant) and P. Brit. Mus. 10274 are written on both sides.
- 97 So in P. Ebers, Westcar and Berlin 3027 ('Zauberspr. f. Mutter u. Kind').
- 98 P. Berlin 3023 (Eloquent Peasant) has on recto: lines 1-77 vertical, 3 columns horizontal, lines 115-21 again vertical, 5 columns horizontal, lines 187-256 vertical; on verso: 5 columns horizontal, from line 305 till the end vertical. Similarly P. Berlin 3022 and 10499.
- 99 P. Chester-Beatty III (Dream Book); the words 'N.N. says' to indicate the writer in front of horizontal lines in Middle Kingdom letters.
- 100 Horizontal line after the address in VIth Dynasty letter P. Berlin 8869; similarly P. Bulak 8 (=P. Cairo 58043) and the date in P. Cairo J.E. 49623.
- 101 cf. P. Chester-Beatty II (Blinding of Truth). The Dramatic Pap. from the Ramesseum was found with the right hand end inside and rolled from right to left. As, however, the lines were to be read in the inverse order, from left to right, the roll was in this state ready for reading (Sethe, *Dramatische Texte zu altäg. Mysterienspielen* (Leipzig, 1928), p. 86).
- 102 The oldest example P. Berlin 10499 (Sinuhe and Eloquent Peasant from the Ramesseum (Möller, *op. cit.*, I, 5, Anm. 6)).
- 103 For these and other examples, cf. Borchardt, *Zeitschr. f. äg. Sprache*, xxvii (1889), 119; Book of the Dead of Gatseshen, XXIst Dynasty (ed. Naville), Pl. LXV.
- 104 e.g. P. Berlin P. 3002, Book of the Dead, XIXth Dynasty (Borchardt, *loc. cit.*).
- 105 cf. Borchardt, *loc. cit.*, n3.
- 106 Möller, *op. cit.*, I, 7.
- 107 e.g. in Pap. Ebers; cf. Grapow, *Zeitschr. f. äg. Sprache*, lxxi (1935), 160.
- 108 In P. Ebers only in one place (between the first two lines of pages 51 and 52), several times in P. Chester-Beatty IV.
- 109 Gardiner, *Hieratic Papyri in the Brit. Mus. Third Series* (London, 1935), Text, p. 45. In the Hyksos period two columns are placed on a sheet (Möller, *op. cit.*, I, 5).
- 110 With lines of 15-19 cm. in length (Möller, *op. cit.*, I, 7).

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- III Caesar 56; cited by Kenyon, *Books and Readers in Ancient Greece and Rome* (2nd ed. Oxford, 1950), p. 57ⁿⁱ.
- 112 Erman, 'Die äg. Schülerhandschriften' in *Abh. d. Preuss. Ak. d. Wiss.* (Berlin, 1925), p. 5.
- 113 *Journal of Egyptian Archaeology*, xxxi (1945), 30, with examples.
- 114 The Turin Papyrus, containing a Necropolis diary of the year 17 of Ramesses IX, which is written on both sides, and whose height varies between 18-22 cm., is only the upper part of a roll. Not a single fragment of the lower part exists in the collection, and it would seem probable that the lower part had been cut away in antiquity, and perhaps utilized as a palimpsest. The same is true of the Turin Papyrus with the plan of the tomb of Ramesses IV (*Journal of Egyptian Archaeology*, iv (1917), 131), now 24.5 cm. in height.
- 115 Early palimpsests are P. Berlin 3024 ('Suicide') and P. Westcar.
- 116 These examples are from C. Préaux, *L'économie royale des Lagides* (Brussels, 1939), p. 193.
- 117 Gardiner, *The Chester-Beatty Pap. No. 1* (London, 1931), p. 4.
- 118 *Annales du Service*, xxv (1925), 243.
- 119 Jéquier, *Le papyrus Prisse* (Paris, 1911), p. 8.
- 120 Möller, *op. cit.*, i, 4.
- 121 First observed in later documents by Gardiner, *Journal of Egyptian Archaeology*, xxvii (1941), 26-7; traced back to Middle Kingdom by Gunn, *ibid.*, p. 157.
- 122 Griffith, *Hieratic Papyri from Kahun* (London, 1898), Pl. x, line 4; xi, 3; xii, 2, 6; xiii, 9, etc.
- 123 The whole date in black, *ibid.*, Pl. xi, 15; xiv, 1, 9; xv, 13, 32, 39, 44, 61, etc.
- 124 Möller, *op. cit.*, i, 4.
- 125 Egyptian scribes do not seem to have developed the habit of scratching away wrong signs. Only Grapow (*Zeitschr. f. äg. Sprache*, lxxi (1935), 161) says that there are some signs *ausgekratzt* in P. Ebers.
- 126 P. Berlin 3022 (Sinuhe) between lines 153-4.
- 127 Erman, 'Die äg. Schülerhandschriften' in *Abh. d. Preuss. Ak. d. Wiss.* (Berlin, 1925), pp. 9-10.
- 128 These corrections have been discovered and fully described by Schäfer, *Zeitschr. f. äg. Sprache*, xxxi (1893), 61-2.
- 129 Chabas, *Pap. mag. Harris* (Châlons-sur-Saône, 1860), p. 94; Schäfer, *loc. cit.*
- 130 ed. Naville, Pl. ii.
- 131 Grapow, *Chronique d'Égypte*, No. 28 (1939), 225. The passage is published in Naville, *The Funeral Papyrus of Iouiya* (London, 1908), Pl. xxxiii.
- 132 Three papyri (one of them nearly 10 m. long) belonging to Sir Alan Gardiner; another, smaller papyrus bought by the Cairo Museum; P. Berlin 10482.
- 133 Sethe, *op. cit.*, p. 522ⁿ², who quotes representations from the Old Kingdom.
- 134 In the XVIIth Dynasty a Queen Mentuhotep had her Book of the Dead still written inside her coffin.
- 135 Found by Schiaparelli and now at Turin; published in his *La tomba intatta dell'architetto Cha*, pp. 32-63.
- 136 Naville, *op. cit.*
- 137 The custom of separating vertical columns by lines does not seem to be anterior to the IIIrd Dynasty; cf. Sethe, *op. cit.*, p. 530ⁿ⁷.
- 138 cf. Speleers, *Le papyrus de Nefer Renpet* (Brussels, 1917). This papyrus has columns written in this order and was rolled up with the left hand inside, as can easily be deduced from the fact that this end is nearly intact, while the exposed right hand end is badly damaged.
- 139 This is found also in some older papyri, e.g. the Ramesseum Dramatic Papyrus or the Kahun Veterinary Papyrus, both of the Middle Kingdom.

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- 140 In P. Brit. Mus. 9900 (of Nebsemi, XVIIIth Dynasty) they are only in black and red, so also in the XXIst Dynasty in P. Brit. Mus. 10093 (Shorter, *Catalogue of Egyptian Religious Papyri in the British Museum*, London, 1938, p. 10).
- 141 cf. P. Brit. Mus. 10477 (of Nu, probably Amenophis III).
- 142 So in Speleers, *op. cit.*, p. 6; Le Page Renouf in *Facsimile of the Pap. Ani* (London, 1890), p. 5. Spaces nowhere filled in with the name: P. Brit. Mus. 9957 (Shorter, *op. cit.*, p. 3).
- 143 Shorter, *op. cit.*, p. 12.
- 144 Renouf, *loc. cit.*
- 145 *Zeitschr. f. äg. Sprache*, xxvii (1889), 121.
- 146 Borchardt, *op. cit.*, p. 122.
- 147 Such a blank space is found already in the Middle Kingdom P. Berlin 3022 (Sinuhe), line 91.
- 148 The scribe of the Book of the Dead of Gatseshen thus marks blank spaces where he found no illustration in the original (Pl. viii, xxvii).
- 149 Borchardt, *op. cit.*, p. 121n1. In the Book of the Dead of Gatseshen the blank space at the bottom of one page (Pl. xxxiv) is marked *wš*; *šw* 'blank and empty'.
- 150 For the various forms of *hw*, *f pw* and references, see *Wörterbuch der äg. Sprache*, I, 45, I-4.
- 151 ed. Naville, Pl. I. The loose fragment bearing the title is photographed as if the title were on the recto, i.e. inside the roll. Same title P. Louvre 3150 (Devéria, *Cat. des manuscrits égyptiens . . . du Louvre* (Paris, 1874), p. 48) and *Bull. Metropolitan Mus. N. York, Egyptian Expedition* 1929-30, p. 24, fig. 27.
- 152 *Journal of Egyptian Archaeology*, xxxi (1945), 31, 32.
- 153 On the recto as the scribe for some reason used the verso (vertical fibres uppermost) of the papyrus first for his text, cf. Peet, *The Great Tomb-Robberies of the Twentieth Egyptian Dynasty* (Oxford, 1930), pp. 52-3.
- 154 P. Bibl. Nat. Paris, 237, 'carton 1'.
- 155 Borchardt, *op. cit.*, p. 120.
- 156 Unpublished Ostrakon Gardiner, 133, lines 3-4, 11-12 (XIXth Dynasty).
- 157 For the Old Kingdom see Klebs, *Die Reliefs des alten Reiches* (Heidelberg, 1915), p. 38, Figs. 24, 25.
- 158 *Chronique d'Égypte*, No. 21 (1936), p. 57.
- 159 Borchardt, *Zeitschr. f. äg. Sprache*, xxxiii (1895), 72-3.
- 160 Capart, *Chronique d'Égypte*, No. 19 (1935), pp. 23-5.
- 161 Col., I, 2; II, 1.
- 162 Erman, *Zeitschr. f. äg. Sprache*, xvii (1879), 71.
- 163 Nic. Schow, *Charta Papyracea Graece scripta* (Rome, 1788), p. iii, cited by Seyffarth, *Beiträge zur Kenntniss der Literatur . . . des alten Aegypten* (Leipzig, 1826-40), I, 2.

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